

Notice of Allowability

Application No.

09/925,157

Examiner

Mohammad A. Siddiqi

Applicant(s)

MUNSHI ET AL.

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01/18/2007.
2. ☒ The allowed claim(s) is/are 14-16, 26-28, 30-38, 40-43, 45 and 46 (rearranged claims 1-8)
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

- 1.** Claims 14-16, 26-28, 30-38,40-43, 45, and 46 are allowed.

EXAMINER'S AMENDMENT

- 2.** An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview George B.F. Yee with on 03/27/2007.

- 3.** Please amend the claims as attached.
- 4.** Please replace the abstract as attached.
- 5.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad A. Siddiqi whose telephone number is (571) 272-3976. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAS

Please amend the claims as attached.

IN THE CLAIMS:

1-13. (Canceled)

14. (Currently Amended) A rendering method, comprising:

receiving at a rendering service a rendering request from a user site, the user site being in communication with the rendering service over a network, the rendering request comprising identifiers of rendering resources currently available at the user site required for performing a rendering task, wherein the rendering task is performed at the rendering service;

maintaining at the rendering service a resource pool comprising rendering resources uploaded from the user site and rendering resources generated at the rendering service;

comparing identifiers of the rendering resources in the resource pool at the rendering service with the identifiers of rendering resources currently available at the user site;

selectively uploading rendering resources from the user site to the rendering service based on a result of said comparing step; and

storing the selectively uploaded rendering resources in the resource pool for use in processing additional rendering requests received from the user site,

wherein the rendering resources comprise scene description files, wherein the rendering method further comprises manipulating a modeling application such that said scene description files comprise at least

one static scene description file and at least one dynamic scene description file.

15. (Currently Amended) A rendering method according to claim 14, further comprising uploading a given required resource from the user site to the rendering service only [[if]]when the comparing step determines there is not a match between the resource pool and the user site for that required resource.

16. (Original) A rendering method according to claim 15, the rendering resources being uploaded to the rendering service in a raw format, the method further comprising:

at the rendering service, generating the raw rendering resources to produce generated rendering resources; and

providing the generated rendering resources to a rendering engine.

17-25. (Canceled)

26. (Currently Amended) A method for rendering comprising:

receiving at a rendering service a rendering request from a user site to render one or more images, the rendering request including information representative of one or more required rendering resources used for rendering the one or more images; and

performing at the rendering service a rendering task in accordance with the rendering request to produce at least one of the one or more images including processing one or more of the required rendering resources,

wherein [[if]]when a required rendering resource is not already stored in a data store local to the rendering server computer system, then uploading that required rendering resource from the user site,

wherein [[if]]when a required rendering resource is already stored in the local data store, then obtaining that required rendering resource from the local data store,

wherein the processing includes producing a generated rendering resource from a first required rendering resource,

wherein when the first required rendering resource has been uploaded from the user site during servicing of a previous rendering request, then obtaining a previously generated rendering resource from the local data store thereby producing the generated rendering resource,

wherein when the first required rendering resource has not been uploaded from the user site during servicing of a previous rendering request, then performing the uploading to obtain the first required rendering resource, performing a generation operation on the first required resource to produce the generated rendering resource, and storing the generated rendering resource in the local data store,

wherein the rendering resources comprise scene description files, wherein the rendering method further comprises manipulating a modeling application such that said scene description files comprise at least one static scene description file and at least one dynamic scene description file.

Art Unit: 2154

27. (Previously presented) The method of claim 26 wherein the processing includes performing a generation operation on a first required rendering resource to produce a first generated rendering resource, storing the first generated rendering resource, and providing the first generated rendering resource to a rendering engine.

28. (Currently Amended) The method of claim 27 wherein performing the generation operation is performed only [[if]]when the first required rendering resource is not already stored in the local data store.

29. (Canceled)

30. (Previously presented) The method of claim 26 further comprising:
 updating a resource pool comprising information representative of rendering resources that have been uploaded from the user site when a required resource is uploaded from the user site;
 comparing information associated with the required rendering resource with the information in the resource pool to determine whether or not a required rendering resource is already stored in the local data store.

31. (Previously presented) The method of claim 26 wherein the rendering server computer system and the user site are at different geographical locations, and the method further comprises communicating with the user site over a communication network.

32. (Previously presented) The method of claim 31 wherein the communication network is the Internet.

33. (Previously presented) The method of claim 26 wherein the rendering server computer system and the user site are co-located, and the method further comprises communicating with the user site over a local area network

34. (Currently Amended) The method of claim 26 wherein the required rendering resources are raw rendering resource files, the method further comprising:

- receiving from the user site a session control file comprising identities of the raw rendering resources file required for the rendering task;

- receiving from the user site at least one resource generation control file comprising associations among the raw rendering resource files and a plurality of generated rendering resources corresponding thereto; and

- for each raw rendering resource file, performing (i) forward-mapping that raw rendering resource file onto a set V of dependent generated rendering resources using information derived from the at least one resource generation control file, (ii) reverse-mapping each member of the set V onto a set W of raw rendering resource files using information derived from the at least one resource generation control file; and (iii) marking that raw rendered resource file for generation when (a) it is not identified in the resource pool or (b) any of the raw rendering resource files set W required uploading for the rendering task.

35. (Previously presented) The method of claim 26 wherein the rendering resources comprise scene description files, the method further comprising manipulating a modeling application such that the scene description files comprise at least one static scene description file and at least one dynamic scene description file.

36. (Previously presented) The method of claim 26 wherein the rendering resources comprise one or more of scene description files, shader files, texture files, or procedural files.

37. (Currently Amended) A rendering server system comprising:

a server device connected to a first communication network for communication with a user site[[,]]; and

a resource pool that is accessible by the server device, the resource pool comprising identities of one or more rendering resources that have been uploaded from the user site,

the server device configured to receive a rendering request from the user site to render one or more images, the rendering request including information representative of one or more required rendering resources used for rendering the one or more images,

the server device further configured to service the rendering request to produce at least one of the one or more images wherein the server device processes one or more of the required rendering resources,

the server device further configured to request a required rendering resource from the user site [[if]]when the required rendering resource is not already stored in a data store local to the server device and

Art Unit: 2154

to upload the required rendering resource from the user site to the local data store,

the server device further configured to access a required rendering resource from the local data store [[if]]when the required rendering resource is already stored in the local data store,

the server device further configured to determine whether to upload a required rendering resource based on information contained in the resource pool,

wherein the rendering resources comprise scene description files, said scene description files comprising at least one static scene description file and at least one dynamic scene description file.

38. (Previously presented) The system of claim 37 wherein the rendering resources comprise one or more of scene description files, shader files, texture files, or procedural files.

39. (Canceled)

40. (Previously presented) The system of claim 37 further comprising a rendering engine, wherein the server device produces a generated rendering resource suitable for processing by the rendering engine, the generated rendering resource being stored on the local data store.

Art Unit: 2154

41. (Currently Amended) The system of claim 40 wherein [[if]]when a required rendering resource is already stored in the local data store, then the server device accesses the local data store to obtain a generated rendering resource that corresponds to that required rendering resource.

42. (Currently Amended) A computer program product to be executed on a server computer system for carrying out a network based rendering service, comprising:

a computer-readable storage medium; and

computer program code stored on the computer-readable storage medium, wherein the computer program code is executable by a data processor and is configured to:

control the data processor to communicate with a user site to receive a rendering request to render one or more images, the rendering request including information representative of one or more required rendering resources used for rendering the one or more images;

control the data processor to perform a rendering task in accordance with the rendering request to produce at least one of the one or more images wherein one or more of the required rendering resources are processed by the data processor;

control the data processor to upload a required rendering resource from the user site [[if]]when the required rendering resource is not already stored in the local data store and to store the uploaded rendering resource in the local data store; [[and]]

control the data processor to access the local data store to obtain a required rendering resource [[if]]when the required rendering resource is already stored in the local data store; and

control the data processor to maintain a resource pool comprising identities of one or more rendering resources that have been uploaded from the user site,

wherein the rendering resources comprise scene description files which comprise at least one static scene description file and at least one dynamic scene description file.

43. (Previously presented) The computer program product of claim 42 wherein the rendering resources comprise one or more of scene description files, shader files, texture files, or procedural files.

44. (Canceled)

45. (Previously presented) The computer program product of claim 42 wherein the computer program code is further configured to control the data processor to process a required rendering resource to produce a generated rendering resource suitable for processing by a rendering engine, and to store the generated rendering resource on the local data store.

46. (Currently Amended) The system of claim 45 wherein [[if]]when a required rendering resource is already stored in the local data store, then a generated rendering resource that corresponds to that required rendering resource is obtained from the local data store.

Art Unit: 2154

Please replace the abstract as follows:

Abstract

Digital rendering over a network is described. Rendering resources associated with a project are stored in a project resource pool at a rendering service site, and for each rendering request received from a client site the project resource pool is compared to current rendering resources at the client site. A given rendering resource is uploaded from the client site to the rendering service only if the project resource pool does not contain the current version, thereby conserving bandwidth. In one embodiment, redundant generation of raw rendering resource files is avoided by only generating those raw rendering resource files not mated with generated rendering resource files. Reducing redundant generation of raw resources is also described, as well as statistically reducing the number of raw resource files required to be uploaded to the rendering service for multi-frame sessions.

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